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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,316	12/21/2000	Stephen J. Kinder	POU92000165US1	5881

7590

03/25/2004

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EXAMINER

ZHEN, LI B

ART UNIT

PAPER NUMBER

2126

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/742,316

Applicant(s)

KINDER ET AL.

Examiner

Li B. Zhen

Art Unit

2126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2000 and 18 July 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Claims 1 – 17 are pending in the application.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent NO. 5,371,886 to Britton in view of U.S. Patent NO. 5,956,506 to Cobb.**

4. As to claim 1, Britton teaches the invention substantially as claimed including a method for a path-sensitive branch registry for cyclic distributed transactions [managing unit-of-work identifiers in a chained distributed transaction system; col. 2, lines 37 – 52], the method comprising:

identifying a superior node [node 102 starts a commit, it becomes the root of the transaction tree; col. 4, lines 30 – 67] as a root [LUWID assigned at the root of the allocation tree, which is node 300-1; col. 6, lines 29 – 62];

sending an outbound flow [TP 302-1 allocates a conversation 308 with TP 302-2 at node 300-2; col. 6, lines 29 – 67] to a plurality of subordinate nodes [descendant nodes 100 and 104; col. 4, lines 30 – 67];

linking an inbound flow with a branch qualifier [name of TP] and global transaction [LUWID] identification [ATTACH includes the name of TP 302-2. It also includes the logical-unit-of-work identifier (LUWID) assigned; col. 6, lines 45 – 62];

receiving the inbound flow from the superior node into a transaction manager of each the subordinate node [When TP 302-2 allocates a conversation to TP 302-3, the ATTACH message from LU 306-2 to LU 306-3 includes the same LUWID; col. 6, lines 55 – 67]; and

recognizing the inbound flow and the outbound flow of branch instructions by the superior node [B sends BACKOUT to A, since the TP at A may already have proceeded with LUWID A.2, which is also being used by transaction programs at E and F. After D propagates the HM or FORGET, RIP to its initiator E, E returns to the TP, which proceeds with LUWID A.2; col. 11, line 57 – col. 12, line 19].

5. Although Britton teaches the invention substantially, Britton does not teaches sending confirmation from each the subordinate node of a subordinate relational status and updating a node registry of a superior-subordinate relationship based on the inbound flow and the outbound flow.

However, Cobb teaches nested transaction management [col. 2, lines 7 – 20], receiving and updating superior-subordinate relationship [transaction context 132 can include a reference to the transaction coordinator, ancestor references for nested transactions, a globally unique transaction id for the transaction coordinator and implementation specific data understood by the subordinate transaction coordinator; col. 4, lines 50 – 65].

6. It would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of receiving and updating superior-subordinate relationship as taught by Cobb to the invention of Britton because this maintains nesting information and ensures correct ordering of operations during transaction completion [col. 8, lines 45 – 52].

7. As to claim 2, Britton as modified teaches the superior node contains a transaction manager, a branch qualifier [name of TP] and a global [LUWID] tree identification [ATTACH includes the name of TP 302-2. It also includes the logical-unit-of-work identifier (LUWID) assigned; col. 6, lines 45 – 62 of Britton].

8. As to claim 3, Britton as modified teaches the inbound flow and the outbound flow include syncpoint cues [SPM executes SYNCPT (commit) or BACKOUT verbs issued by a transaction program; col. 6, lines 9 – 29 of Britton].

9. As to claim 4, Britton as modified teaches transaction manager sends the syncpoint cues to subordinate nodes [SPM executes SYNCPT (commit) or BACKOUT verbs issued by a transaction program; col. 6, lines 9 – 29 of Britton].

10. As to claim 5, Britton as modified teaches the plurality of subordinate nodes each contain a transaction manager [Each node contains an SPM 307, at least one transaction program (TP) 302, Fig. 3; col. 5, line 61 – col. 6, line 9 of Britton].

11. As to claim 6, Britton as modified teaches the transaction manager of the superior node links the syncpoint cues with the branch qualifier and the global transaction identification [ATTACH includes the name of TP 302-2. It also includes the logical-unit-of-work identifier (LUWID) assigned; col. 6, lines 45 – 62 of Britton].

12. As to claim 7, Britton as modified teaches the transaction manager of each the subordinate node receives syncpoint cues from the superior node [SPM executes SYNCPT (commit) or BACKOUT verbs issued by a transaction program; col. 6, lines 9 – 29 of Britton] and sends confirmation to the superior node of the subordinate relational status [transaction context 132 can include a reference to the transaction coordinator, ancestor references for nested transactions, a globally unique transaction id for the transaction coordinator and implementation specific data understood by the subordinate transaction coordinator; col. 4, lines 50 – 65 of Cobb].

13. As to claim 8, Britton as modified teaches the superior node and the subordinate node recognize relational status based on the syncpoint cues linked with the branch qualifier and the global transaction identification [transaction context 132 can include a reference to the transaction coordinator, ancestor references for nested transactions, a globally unique transaction id for the transaction coordinator and implementation specific data understood by the subordinate transaction coordinator; col. 4, lines 50 – 65

of Cobb] and the branch qualifier is established and unique for the life of the transaction [a globally unique transaction id for the transaction coordinator].

14. As to claim 9, Britton as modified teaches the subordinate relational status is updated based on the flow of the syncpoint cues node [SPM executes SYNCPT (commit) or BACKOUT verbs issued by a transaction program; col. 6, lines 9 – 29 of Britton].

15. As to claim 10, Britton as modified teaches a system utilizing a path-sensitive branch registry for cyclic distributed transactions [managing unit-of-work identifiers in a chained distributed transaction system; col. 2, lines 37 – 52 of Britton], the system comprising:

- a plurality of nodes in a distribution tree [transaction tree consisting of nodes 300-1 through 300-6, Fig. 3; col. 5, lines 60 – 67 of Britton];

- a superior node [node 102 starts a commit, it becomes the root of the transaction tree; col. 4, lines 30 – 67 of Britton] identified as the root [LUWID assigned at the root of the allocation tree, which is node 300-1; col. 6, lines 29 – 62 of Britton];

- a plurality of subordinate nodes [descendant nodes 100 and 104; col. 4, lines 30 – 67 of Britton] that receive an inbound flow from a superior node [TP 302-1 allocates a conversation 308 with TP 302-2 at node 300-2; col. 6, lines 29 – 67 of Britton];

- the superior nodes and the subordinate nodes each include transaction managers [transaction program (TP) 302, Fig. 3 of Britton] for managing a node's

registry and updating the registry in response to the inbound flow [Each node contains an SPM 307, at least one transaction program (TP) 302, Fig. 3; col. 5, line 61 – col. 6, line 9 of Britton];

a plurality of the transaction managers that compare the inbound flow against the node's registry [ICurrent 552 tests to determine whether or not a transaction is active in the current thread of execution; col. 8, lines 52 – 65 of Cobb];

a plurality of the registries that contain an identifier that is updated by the transaction managers [transaction context 132 can include a reference to the transaction coordinator, ancestor references for nested transactions, a globally unique transaction id for the transaction coordinator and implementation specific data understood by the subordinate transaction coordinator; col. 4, lines 50 – 65 of Cobb].

16. As to claim 11, Britton as modified teaches the inbound flow includes syncpoint cues [SPM executes SYNCPT (commit) or BACKOUT verbs issued by a transaction program; col. 6, lines 9 – 29 of Britton].

17. As to claims 12 and 13, Britton as modified teaches the transaction managers compare the inbound flow against the registry addresses [ICurrent 552 tests to determine whether or not a transaction is active in the current thread of execution; col. 8, lines 52 – 65 of Cobb].



18. As to claim 14, Britton as modified teaches the inbound flow contains identifiers including a branch qualifier and a global transaction identity [ATTACH includes the name of TP 302-2. It also includes the logical-unit-of-work identifier (LUWID) assigned; col. 6, lines 45 – 62 of Britton].

19. As to claim 15, Britton as modified teaches the identifiers are incremented [All nodes in the subtree increment their LUWIDs and continue as normal; col. 2, line 65 – col. 3, line 17 of Britton].

20. As to claim 16, Britton as modified teaches a method for managing a distributed transaction comprising one or more transaction flows between respective pairs of nodes in a network of interconnected nodes [managing unit-of-work identifiers in a chained distributed transaction system; col. 2, lines 37 – 52 of Britton], each of the transaction flows being accompanied by an originating node identifier identifying the originating node [ATTACH includes the name of TP 302-2. It also includes the logical-unit-of-work identifier (LUWID) assigned; col. 6, lines 45 – 62 of Britton], the method being performed by one of the nodes as a local node and comprising the steps of:

maintaining a registry comprising zero or more entries [transaction context] corresponding to inbound flows from other nodes, each of the entries containing the originating node identifier [ancestor references for nested transactions] accompanying the corresponding inbound flow and a local node identifier identifying the local node [a globally unique transaction id for the transaction coordinator], the local node identifier

being used to identify the local node in outbound transaction flows to other nodes resulting from the inbound flow [transaction context 132 can include a reference to the transaction coordinator, ancestor references for nested transactions, a globally unique transaction id for the transaction coordinator and implementation specific data understood by the subordinate transaction coordinator; col. 4, lines 50 – 65 of Cobb];

upon receiving an inbound flow from another node, determining whether there is an entry in the registry for the originating node identifier accompanying the inbound flow [FORGET messages are then returned to node 102 in this example as acknowledgements to the COMMIT message. At this point, in a chained transaction system, each of the nodes increment their LUWIDs and proceed to new work; col. 4, lines 30 – 67 of Britton];

if there is no entry for the originating node identifier and there is no entry for another inbound flow for the same transaction [program-initiated conversation deallocation], creating an entry in the registry containing the originating node identifier and a local node identifier identifying the local node [when a tree is severed because of normal program-initiated conversation deallocation, a new LUWID is created and propagated in one of the subtrees; col. 7, lines 11 – 50 of Britton]; and

if there is no entry for the originating node identifier and there is an entry for another inbound flow for the same transaction [message informs a receiving partner that the new LUWID included in the message should be used for the next transaction, since the old LUWID is obsolete], creating an entry in the registry containing the originating node identifier [new LUWID] accompanying the inbound flow and a local node qualifier

identifying the local node that is different from any other local node identifier in the registry for that transaction [A NEW.sub.-- LUWID message is a message that flows along with the other two-phase commit messages. This message informs a receiving partner that the new LUWID included in the message should be used for the next transaction, since the old LUWID is obsolete; col. 7, lines 10 – 50 of Britton].

21. As to claim 17, Britton as modified teaches the local node identifier contains an index portion that is incremented from a previous value [All nodes in the subtree increment their LUWIDs and continue as normal; col. 2, line 65 – col. 3, line 17 of Britton] if there is no entry for the originating node identifier and there is an entry for another inbound flow for the same transaction [transaction program in the dismantled subtree generates a new and unique LUWID for use with any subsequent work that it performs; col. 3, lines 1 – 18 of Britton].

### ***Conclusion***

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent NO. 6,442,618 to Phillips et al. teaches a method for universal transaction processing.

U.S. Patent NO. 5,432,926 to Citron et al. teaches improving database reliability and response time in a distributed transaction processing system.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (703) 305-3406. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Li B. Zhen  
Examiner  
Art Unit 2126

lbz  
March 19, 2004

  
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